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ABSTRACT

A study was conducted to determine the information technology (IT) training needs of front-line clerical staff, medical records staff, and information systems staff in hospitals. Information was gathered through interviews and structured group discussions with human resources directors, information systems directors, medical records directors, and workers in the three occupational areas at a randomly selected sample of hospitals in New York City. Participants were asked to describe and assess the impact of the evolving use of IT on current job content, knowledge requirements, education and training needs, and potential career paths. The study also assessed the impact of IT on the supply and demand for workers in each of these occupational areas. Key findings include the following: (1) basic computer information and keyboarding skills are necessary for workers on a daily basis; (2) IT training for front-line clerical workers has primarily been task-specific, but the training could be more effective if it included an overview of the systems used by the hospital and more generic IT information; (3) increased proficiency in using IT systems is not tied to advancement opportunities for front-line clerical workers; (4) increased use of IT does not significantly impact the recruitment or retention of clerical workers; and (5) increased use of IT has not reduced staff. Recommendations were made for increased training, the use of additional training methods (such as distance learning), and career advancement for front-line clerks who improve their IT skills. (KC)

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I.T. IN THE WORKPLACE:

THE IMPACT OF INFORMATION SYSTEMS TECHNOLOGY ON THE EDUCATION AND TRAINING NEEDS OF HOSPITAL WORKERS IN NEW YORK CITY

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A Report to

The Local 1199 Hospital League/
Health Care Industry Planning and Placement Fund, Inc.

from

The Center for Health Workforce Studies
School of Public Health
University at Albany, SUNY

June 2001

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PREFACE

The Local 1199 Hospital League/Health Care Industry Planning and Placement Fund (the P&P Fund), a joint labor-management fund, is responsible for a wide range of education and training programs for more than 100,000 health care workers in the New York City metropolitan area. The majority of these workers are employed in hospitals.

In order to better understand the impact of information technology on the education and training needs of selected occupational groups of hospital workers covered by the Fund, the P&P Fund engaged the Center for Health Workforce Studies at the University at Albany to conduct a study. The Center for Health Workforce Studies is a not-for-profit research center operating under the auspices of the School of Public Health at the University at Albany, State University of New York, and Health Research, Incorporated (HRI).

Michael Dill and Gilbert Marzan of the Center conducted the study, and Jean Moore, Edward Salsberg and Robert Martiniano assisted in the preparation of this report, which summarizes the findings of that study. The views expressed in this report are those of the Center and do not necessarily represent the views of the School of Public Health, the University at Albany, HRI or the P& P Fund.

The Center extends its gratitude to all those who volunteered their time to assist us with this study. Thank you.

EXECUTIVE SUMMARY

Background

Hospitals are highly complex institutions, with thousands of individuals sharing responsibility for the care and services provided to patients. Since medical interventions have expanded exponentially over the past several decades and the average length of stay in hospitals has dropped sharply, patients now receive an enormously complex array of services in a much shorter period of time. Effective care and the survival of patients require the management of large amounts of information over a relatively short period of time. Failure to communicate or accurately record information in a timely manner can easily cost the life of a patient. In addition, growing pressures to constrain health care costs have put great pressure on hospitals to be more efficient as well as effective. The fiscal survival of a hospital requires the effective management of large amounts of information.

The hospital of the twenty-first century cannot survive without effective information technology. Relatively quickly, information systems and technology have become integral components of health care delivery systems. Consequently, the hospital industry in America has invested billions of dollars in hardware and software and information technology over the past several decades. One of the factors critical to the success of this investment is the ability of the hospital staff to effectively use these new technologies.

The Local 1199 Hospital League/Health Care Industry Planning and Placement Fund (the P&P Fund), is responsible for a wide range of education and training programs for hospital workers in the New York City metropolitan area. To better understand the impact of information technology on the education and training needs of three specific occupational groups of workers, the P&P Fund engaged the Center for Health Workforce Studies at the University at Albany. The three specific groups of hospital workers to be studied were:

- Front-line clerical staff;
- medical records staff; and
- information systems staff.

To answer the questions and concerns raised by the Fund, the Center conducted a series of interviews and structured group discussions with human resources (HR) directors, information systems (IS) directors, medical records (MR) directors and workers in the three occupational areas at a randomly selected sample of hospitals in New York City. Participants in the interviews and the group discussions were asked to describe and assess the impact of the evolving use of information technology on the following:

- current job content;
- knowledge requirements;
- education and training needs; and
- potential career paths.

In addition, the Center was asked to assess the impact of information technology on the supply and demand for workers in each of the three occupational areas.

For the purposes of this report, information technology encompasses: the use of personal computers for word processing or Internet access; the use of electronic management or clinical systems for job-specific tasks such as billing, scheduling medical appointments, or laboratory services; and the use of integrated medical information systems (MIS).

KEY FINDINGS

I. ***The increasing use of information technology requires more highly skilled workers who are capable of using computers in their day-to-day work.***

According to HR and MR directors, as well as staff, with the expanded use of information technology, most entry level jobs (including medical records clerks and front-line clerical staff) now require workers with higher levels of computer literacy. While there is a general perception that this is a less problematic issue for younger workers, experienced staff have also adapted to the new technologies quickly.

II. ***Basic computer and keyboarding training is necessary for workers to effectively use information technology in their day-to-day work.***

Both departmental directors and staff believe that certain basic training – separate from training specifically aimed at using specific systems - is essential to successfully use computerized information systems. It is therefore essential to train workers, including both existing staff and the pool of potential new hires, in the new basic skills required for the positions they either currently hold or for which they would like to apply. In addition, as hospitals expand the number of computerized information systems they use and replace older software and hardware, there is a need for workers to continually upgrade their skills.

III. ***Information technology training for front-line clerical workers and medical records clerks has primarily been task-specific, but the training may be more effective if it included an overview of the systems used by the hospital and more generic information on the use of technology.***

While workers indicated that they had received training on using information technology in their day-to-day jobs, they also indicated that it would be helpful to learn more about the computer systems they use and that this could improve their overall job performance. Workers thought that greater contextual training (i.e., computer systems overview), as well as cross-training, could benefit both hospitals and workers.

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IV. Increased proficiency in using information systems technology is not generally tied to advancement opportunities for front-line clerical workers and medical records clerks.

According to most HR and MR directors, proficiency in the use of information technology has little impact on advancement opportunities for front-line clerical workers or medical records staff, largely due to the fact that these skills are standard job requirements rather than additional skills. In addition, because hospitals usually use multiple, distinct information systems, the system-specific skills in one area may not be transferable to another system in the hospital.

Some HR and MR directors suggested that, in some cases, increased proficiency in using information technology could facilitate expanded advancement opportunities within and outside of the health care sector. Front-line clerical workers and medical records clerks who participated in the discussion groups recognized computer usage as an integral part of their jobs, but most also believed that computer proficiency could improve both their current and future employment opportunities.

HR and IS directors agreed that, unlike the other two occupational areas, there are more advancement opportunities for IS staff as their skills afforded them great career mobility.

V. Increased use of information technology does not significantly impact on the recruitment or the retention of either medical records staff or front-line clerical workers.

According to HR directors, vacancies for most front-line clerical workers and medical records staff are relatively easy to fill and turnover among these positions is not believed to be related to the increasing use of information technology. However, HR directors agree that there is an inadequate supply of medical records coders and that there are serious recruitment and retention problems for coders.

VI. Both entry-level and senior-level information systems staff are in high demand, creating serious recruitment and retention problems.

While entry-level information systems staff can usually be recruited, they are hard to retain once they become knowledgeable because their job experience marketability rises rapidly. Senior level information systems staff, especially programmers, are difficult to recruit and retain because demand for these titles is high both within and outside the health care industry.

VII. The increased use of information technology has not resulted in staff reductions. In fact, new information systems often lead to additional jobs.

Contrary to beliefs that workers may be replaced by computers, the expanded use of information technology by hospitals has not led to staffing reductions. HR managers emphasized that the introduction of computerized data systems often increased staffing needs. For example, as hospitals expand their information systems (clinical records, billing, payroll, appointment scheduling), more technical support staff are needed to manage them and assist other personnel with their use. However, several HR directors believed that as medical records departments become more fully computerized, reductions in the number of medical records clerks would become more likely.

RECOMMENDATIONS

I. Ongoing training should be available for both job-specific systems and skills and more general information technology skills. A broad range of information technology training should be available to all employees - from basic computer training to higher-level computer training such as network engineer.

The increasing use of information systems throughout almost every aspect of health care, along with nearly constant upgrades and changes in information systems, means that it is in the best interest of labor and management to have workers that are well trained and competent with information technology. More general training is also highly recommended as it will provide workers with advancement opportunities and provide management with greater flexibility. The potential for cross-training workers in titles that require comparable proficiencies in automated tasks should be explored.[1]

II. Information technology training should be easily accessible to health care workers. The P&P Fund should explore the use of distance learning and self-instruction modules.

Given the pervasiveness of information technology in health care, and indeed in almost all employment settings, and the potential to improve services, information systems training should be available and easily accessible to workers. This would include making self-instruction modules available along with facilitating access to computers.

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[1] It should be noted that hospitals have, for the most part, recognized this need. Different levels and types of computer-related training are offered by many hospitals. However, because this puts a strain on resources, maintaining such training opportunities as ongoing is often not feasible.

III. ***Career advancement opportunities should be developed for front-line clerical workers and medical records staff who increase their proficiency in the use of information technology. This might include opportunities to enter occupations in high demand, such as PC support positions and entry level information systems staff.***

Currently, there are few opportunities for the front-line clerical workers or medical records staff who are proficient in information technology to advance into different areas of the hospital. Given the difficulty in recruiting and retaining information systems staff, supporting career advancement opportunities in information systems is recommended.

INTRODUCTION

By the late 1980s and 1990s, information technology within the health care field had advanced substantially and hospitals had begun to automate a variety of hospital operations and departments, including patient records, laboratory, payroll, staff scheduling, billing, and appointment scheduling. This expansion led to an increase in the use of computers by both clinical and non-clinical staff. For example, most front-line clerical staff now use computers to enter or retrieve information from automated patient records.

Moreover, health care providers, especially hospitals, now perceive information systems as essential to improving efficiency, containing costs and competing successfully for health care dollars in an increasingly market-oriented industry. Today, driven by cost pressures and explicit managed care demands, hospitals are investing in integrated information systems that extend far beyond the department level, merging patient, financial, clinical, and ancillary information systems. Cutting-edge information systems focus on entire facilities, sometimes linking the patient's bedside with a network-wide information system and, in some cases, linking remote facilities, thus creating continuum of care venues for patients through region-wide integrated information systems.

This rapid expansion of information technology has substantial employment and job skill implications. To better understand the effects of these developments on hospital personnel, the Center for Health Workforce Studies conducted a study to examine the impact of information technology implementation on the training and education needs of front-line clerical staff, medical records staff and information systems staff. The Local 1199 Hospital League/Health Care Industry Planning and Placement Fund, Inc., provided funding. This report presents the results of the study.

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Methodology

The Center interviewed Human Resources (HR), Medical Records (MR) and Information Systems (IS) Directors and conducted focus groups with front-line clerical workers and medical records staff at four hospitals in New York City. The interviews with directors focused on:

- changes in facility staffing, i.e., plans for adding or reducing workers as a result of the increasing use of new information technology; and
- changes in the skill sets needed by workers in order to keep pace with the changes in their jobs brought about by the growing use of new information technology.

The Center also held a series of structured discussion group meetings with health workers in medical records and front-line clerical positions. These discussion groups focused on:

- experiences using new technology;
- perceptions of changing workplace demands resulting from increased use of information technology; and
- perceptions of their training and education needs related to using information technology.

The forty hospitals in the five boroughs of New York City represented by Local 1199 were used to construct a sampling frame in which they were stratified by borough and by recent information technology-related capital expenditures (based on approved Certificate of Need applications for information technology capital expenditures on file with the New York State Department of Health). From this frame, an eight-hospital sample was drawn. Of these, four hospitals were selected to participate in the study.

The research was conducted in two parts. In the first part of the study, hospital HR, MR and IS directors were interviewed and asked the following kinds of questions:

- What factors have influenced the hospital's decisions to expand/upgrade information technology?
- How has the increasing use of information technology impacted on workers' skills and knowledge and their education and training needs?
- What impact has the increasing use of information technology had on the recruitment and retention of workers? What impact does it have on advancement opportunities?

The second part of the study consisted of a series of structured discussion group meetings held with workers in medical records and in front-line clerical positions. The following types of questions were asked:

- How have your jobs changed as a result of the increasing use of computers and other information technologies?
- Have you received training to learn the new skills needed? Has it been helpful?
- What impact will the increasing use of computers and technology have on your job in the future?
- What additional computer training do you feel would be most helpful to you?

This report presents a summary of the findings of both the interviews with HR, MR and IS directors and the discussion groups with health workers in medical records and front-line clerical positions.

General Results

⌘ Findings of interviews with Human Resources, Medical Records and Information Systems directors

- ***Cost savings and improved efficiency are the primary reasons for hospitals to expand their use of information systems technologies.***

When HR and IS directors were asked to identify the most important factors influencing decisions related to the expansion of information systems technologies, the most common responses were cost savings and improved efficiency. Some of the respondents also identified network development and the growth of managed care as factors that influenced such decisions. Respondents agreed that expanded information systems technologies were necessary to cope with anticipated workload increases associated with the rising number of patients. A few of the respondents also indicated that changes in health care regulations on medical records and billing procedures influenced their decision to expand information systems.

Several of the respondents thought that the factors they identified were inter-related and could ultimately improve patient satisfaction. Electronic record keeping makes it easier to enter and retrieve information. It is much more efficient to communicate patient information electronically than by inter-office mail. As patients increasingly become 'consumers' of health care, they look for the best value for their health care dollar and are concerned about how they are treated by hospital staff. Increasing use of technology has the potential to reduce paperwork and to free up staff for more face-to-face interaction with patients, thus improving patient relations.

- ***The increased use of information technology has not resulted in staffing reductions.***

A common belief about the expanded use of information technology is that it cuts hospital expenditures through staff reductions. However, none of the hospitals included in the study sample had experienced staff cuts due to information systems expansion.

In fact, they indicated that expanded use of information technology can cause an increase in staffing needs, including staff who:

- maintain and repair computers;
- train staff in computer usage; and
- provide technical assistance to computer users (i.e., help desk staff).

Front-line clerical positions were the least likely to be cut as a result of the expanded use of information technology. While these positions require the ability to use information technology to collect, enter, and retrieve patient data, they also involve a high volume of face-to-face interactions with patients and other staff.

HR and MR directors indicated that increased use of information technology has not yet led to reductions in the number of medical records staff. Nonetheless, increased automation of medical records systems could eventually lead to the elimination of paper records with consequent cuts in staff. Also, the demand for medical transcriptionists may drop, perhaps even dramatically, in the future as technological advances in automated voice transcription significantly change the field.

- ***The increasing use of information technology requires more highly skilled workers who are capable of using computers in their day-to-day work.***

Most of the directors agreed that the increasing use of computers required better-prepared workers. One HR director stated that, in the past, applicants for admitting clerk positions were required only to demonstrate an ability to write. Currently, applicants for admitting clerk positions must document education beyond high school and basic computer proficiencies.

- ***Basic computer and keyboarding training is necessary for workers to effectively use information technology in their day-to-day work.***

Many of the HR and IS directors stated that workers such as front-line clerical staff needed training in certain basic computer skills in order to more effectively use information technology as part of their jobs. More than one administrator noted that keyboarding skills are now very important for front-line clerical staff and that training therein would benefit both current personnel and anyone interested in obtaining a clerical position.

MR directors indicated that medical records departments were undergoing profound changes as a result of new information technology and were becoming

increasingly computerized. Consequently, they expressed a belief that medical records personnel need both to be more proficient in using current computer systems as part of their day-to-day jobs and to develop higher comfort and proficiency levels with PC systems as more and more hospitals move their medical records systems over to that platform.

Administrators also indicated that in some instances the more senior workers were reluctant to learn to use computers, compared to workers with less seniority who seemed more willing to learn about and use computers in their day-to-day work (and who were more likely to have been exposed to them prior to entering the workforce). However, HR and MR directors pointed out that this was not always the case: some older workers were eager to learn about and work with computers.

- ***Increased proficiency in using information systems technology is not always tied to advancement opportunities for health care workers.***

According to interviewed administrators, proficiency in the use of information technology has little impact on advancement opportunities for front-line clerical positions, which are considered entry-level jobs. Several indicated that advancement opportunities for front-line clerical workers were limited to administrative assistant or secretarial titles in other departments, such as billing, radiology, or administration.

Advancement opportunities for medical records clerks were also described as limited, since higher-level positions within the field require more technical expertise and require more education. While medical records coders are in short supply and high demand, a medical records clerk would need at least one year of training to become a certified coder. HR directors also indicated that the skill sets for medical records staff tend to be job-specific and not easily transferable, since medical records clerks generally use specific computer software packages that are not comparable to those used in other departments. This also reduces their ability to seek employment opportunities outside of the hospital.

In contrast to clerical workers and medical record clerks, there are many opportunities for advancement in the information systems field. As IS staff learn new technical skills, they increase their marketability. More highly-skilled IS staff can generally find better-paying jobs both within and outside the hospital industry. Competition from private industry (Wall Street, banks, law firms, etc.) has had a significant impact on both the recruitment and retention of these staff. Along with higher salaries, these companies can provide incentives, such as stock options, that hospitals cannot.

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- ***Increased use of information systems technology did not have a significant impact on the recruitment or the retention of either medical records staff or front-line clerical workers.***

HR directors indicated that while it was sometimes hard to find candidates with appropriate computer skills, they had no problems recruiting for vacancies in any of the front-line clerical titles. Some HR directors indicated that new hires were often trained in the computer applications they would use prior to beginning their jobs. Within medical records departments, HR and MR directors agreed that medical records coder was the only title that was extremely difficult to recruit.

HR directors did not think that the increasing use of information technology affected the retention of front-line clerical staff. They indicated that workers in these titles were more likely to leave for a variety of other reasons: promotions; employment opportunities outside the organization; or dissatisfaction with the job. One HR director indicated that since front-line clerical positions require extensive interactions with patients and staff, workers who were not "people friendly" generally did not stay long in these positions. Most of the HR directors agreed that retention of front-line clerical titles was not an issue.

HR directors did not think that the increasing use of information technology affected the retention of medical records staff. One MR director reported that several workers in the medical records department were retiring with over 30 years of service. In general, the potential for long-term retention of medical records workers was good, depending to some extent on the job title of the worker and whether the department was undergoing any major changes. MR directors also indicated that among medical records staff, coders had the highest level of job security but also required the most specific technical training. Besides retirement, medical records staff left for various reasons, including other job opportunities (either within or outside the organization), school, and dissatisfaction with the job.

- ***High demand and competition from other employers and industries for entry-level and senior-level information systems staff affects recruitment and retention in these titles.***

According to HR and IS directors, many senior-level positions in information systems departments were hard to recruit. They attributed this in part to the great demand for senior-level information systems workers, both within and outside of health care. Jobs outside of health care typically offered very good pay and benefits. Additionally, since many of the major hospitals in New York City use similar systems, competition is high for senior-level workers with experience using these systems. HR and IS directors also indicated that some entry-level information systems positions were hard to recruit because of difficulties finding qualified candidates with the appropriate computer training or experience for the pay offered.

HR and IS directors indicated that turnover rates for information systems staff differed depending on the job. Turnover was greatest for senior-level information systems staff with highly specialized technological skills. This was attributed to the high demand for these workers both within and outside the health industry. Turnover was lower for information systems middle managers due to less general demand for individuals with these skill sets, in addition to wages and benefits for these positions being fairly competitive. There was consensus that turnover for entry-level positions was high, particularly in help desk jobs. Once these workers gain sufficient skills and experience, they can move on to better paying jobs, both within and outside the health care sector.

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⌘ FINDINGS OF DISCUSSION GROUPS WITH FRONT-LINE CLERICAL WORKERS AND MEDICAL RECORDS STAFF

The second part of the study focused on the increasing use of information systems technology from the perspective of workers. The findings presented in this section are based on discussion groups held with front-line clerical workers and medical records staff who are represented by Local 1199. These groups were conducted on-site at the hospitals selected for the study. Three discussion groups were held – one discussion group with front-line clerical workers and two discussion groups with medical records staff.

The front-line clerical workers who participated in the discussion groups were Patient Service Representatives (PSRs) working in a number of departments, including pediatrics, medicine and neurology. While the job responsibilities for PSRs varied, all had frequent contact with patients for registration, scheduling appointments, and billing. PSRs also answered telephones and occasionally received clerical assignments such as typing memos or patient notes.

The medical records staff that participated in the discussion groups were in a number of different job titles with varied responsibilities. Job titles included data entry clerks, senior clerks, and coders. The primary responsibilities for entry-level medical records jobs were filing, data entry, and record retrieval. Other medical records positions included responsibilities such as chart compiling and transcribing. Coders' primary responsibility is compiling patient information for billing purposes. Their job in the medical records department is a critical one since it impacts on the reimbursements that hospitals receive for the care they provide.

- ***Information technology is used with increasing frequency by front-line clerical staff and medical records staff.***

The front-line clerical workers who participated in the discussion groups said that they use computers routinely in their day-to-day work. They use specialized software programs for entering data for patient registration and billing and software such as Microsoft Word™ for word processing assignments.

The medical records staff who participated in the discussion groups indicated that they use computers extensively in their day-to-day work. They use computerized systems for data entry and to locate medical charts. They noted that the use of computerized systems in their work is a relatively new phenomenon. Discussion participants stated that higher-level staff, such as

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senior clerks and coders, used information systems more frequently and were better informed about the systems they use. They also noted that entry-level staff used computerized systems less often and had more limited knowledge of these systems.

- ***Front-line clerical workers and medical records staff were trained to use information systems technology in their day-to-day work, but thought that more training would be helpful.***

The front-line clerical workers in the discussion group indicated that they had been trained to use computers in their day-to-day work. Some of the workers wanted training that was more specific to the tasks they performed. Others felt that broader training would be helpful and that computer proficiency was a transferable skill that could help them to advance to other positions within the hospital. Moreover, there was a general consensus among these workers that computers, including internet-based activities, were permeating everyday life and that those who were not "up to speed" with these technologies would be left behind in the workplace, in the job market, and in general.

Front-line clerical staff also mentioned that even when they received appropriate job-related computer training, unless the skills they developed through such training were used regularly, their skill levels tended to decline. Ongoing or refresher courses would, they suggested, help both them and their employers by alleviating or at least ameliorating this problem.

The medical records staff in the discussion group indicated that they, too, had been trained to use computers in their day-to-day work. A vendor usually provided basic training after a new software system was installed. After the preliminary computer training was completed, however, medical records staff had to learn more about the system as they used it. Many of the workers in the discussion group felt that the training was insufficient, since they spent a considerable amount of time learning the system themselves. They agreed that additional training was needed. Some workers felt that the training should be more comprehensive. Other workers suggested that since most of the tasks performed by workers in the medical records departments were interrelated, comprehensive training on the system as well some cross-training among staff would be useful. An improved understanding of where their own work fit into the larger system would improve both job performance and satisfaction, and even limited cross-training would increase overall efficiency levels with medical records departments.

- ***Front-line clerical workers and medical records staff believed that the increasing use of technology in their day-to-day work could have a positive impact on their future, provided the opportunity to keep pace with changes was made available to them.***

All workers in the discussion groups agreed that the increasing use of information technology in their day-to-day work would have a positive impact on them. They believed that computer usage was becoming an integral part of their jobs and increased computer proficiency would improve their productivity. One senior worker suggested that the union should encourage and pay for training outside the institution. Front-line clerical workers indicated that training in using computers should be ongoing and should in part focus on the specific tasks they perform using computers. These workers also felt that broader knowledge about other software programs, which may not relate directly to the tasks they perform, would also be helpful. All workers participating in the discussion groups felt that computer usage was an important part of their job, and most were willing to learn more about computers and the overall systems used by the hospitals. Some group members suggested that cross-training workers in other computer-based tasks had the potential to improve the performance of workers by broadening their skills and might also create opportunities for advancement.

Medical records staff also had a positive outlook on the relationship between increasing computer usage and the jobs they performed. The majority of the workers interviewed wanted to move beyond the computer proficiency needed for their work and wanted more knowledge about computers in general. They suggested that a course on the basics of computers would be helpful. Medical records staff also suggested that training should be ongoing. Most workers felt that the more computer knowledge they had, the better they could do their jobs.

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